CONOTEC

CONOTEC CO., LTD.

Chiller Controller

i 300

Thank you for using our CONOTEC's products.

Please, be sure to read "Handling Precautions" before use, and use this product correctly.

After reading this user manual, keep it in a place where you can see at any time.

It will be much more convenient when you use this product after reading this user manual.

Manual Version: V1.0

※ CONOTEC's services are also the best.
Through our dealer where you purchased this product, you can report on the failure or discomfort in use.

※ To improve the performance of the products, the specifications of this product are subject to change without prior notice.
Please well understand the specified contents in the precaution interval when handling this product, and be sure to comply with them.

※ This instrument is suitable for the following environments:
Ambient Temperature: 0℃~60℃
Ambient Humidity: Less than 80% RH
Rated Power: 110VAC~220VAC ± 10% 50/60Hz

■ Major Products and Developments
-Digital Temperature/Humidity Controller
-Digital Timer, Current/Voltage Meter
-Other Product Developments

Contents

1 Handling Precautions

Thank you for purchasing our CONOTEC's products.
In order to use this product, please be aware of the details below.

Safety Precautions

⚠ Warnings

1. This product has not been manufactured as a safety device; therefore, in the case that this product is going to be used for controls, such as devices from which you feel concerned about personal injury, serious damage to the peripheral devices and enormous property damage, please use it with double safety devices attached.
2. Please do not connect, inspect or repair it when power is on.
3. The panel must be attached to use. It can be the cause of electric shock.
4. When connecting power, please be sure to identify the terminal number and connect them.
5. Please never disassemble, process, improve or repair this device.

⚠ Caution

1. Prior to installation of this instrument, please well understand the safety regulations, warnings and how to use and use this device only within its specified relevant specifications or capacity.
2. Do not install or wire it on the motors and solenoids, etc. which are extremely inductive loaded
3. When extending sensors, please use the same lines and do not make them longer than necessary.
4. Do not use any parts which cause arc when directly opened or closed at the same power or its nearby.
5. Please keep the power line away from the high-tension power cable, and do not install it in a place where water, oil or dust is severe.
6. Please do not install it in the place of being exposed to direct sunlight or rain.
7. Please do not install it in the place of strong magnetism, noise, severe vibration and shock.
8. Please keep it away from the place where strong alkaline and strong acidic materials directly come out.
9. Do not spray water directly onto the device for the purpose of cleaning during the installation in the kitchen
10. Do not install it in a location where the temperature /humidity exceed the rated ones.
11. Please use it with the sensor wire not being broken or scratched.
12. Use an independent pipe and keep the sensor wire away from the signal line, power and load wires
13. Please note that the follow-up services are not available when arbitrarily disassembling or modifying this product.
14. A display on the terminal connection diagram is a safety phrase of caution or warning.

15. Do not use near devices causing strong high-frequency noise (high-frequency welders, high-frequency sewing machines, high-frequency radios, large SCR controller).
16. When using methods other than specified by the manufacturer, injury or property damage may occur.
17. Please keep out of children's reach, since it is not a toy.
18. Please install it by the related professional or qualified person.
19. When wiring the product, terminals and screws should be tightened with sufficient torque. Contact failure may cause a fire.
20. Do not use a load that surpassed the rated value of switching capacity of relay contact point. This may cause insulation failure, contact weld, and poor contact.
21. We disclaim all the responsibility for damages caused by the negligence of the consumer or by not complying with a warning or caution statements specified above.

⚠ Danger

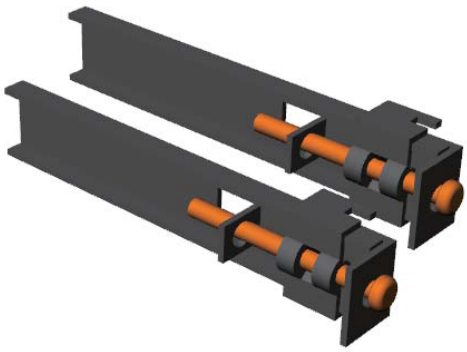
■ Caution, danger of electric shock

1. Electric shock – Please do not touch the AC terminals while the power is on. You may get an electric shock.
2. When checking the input power, please be sure to shut off the input power.

2 Components

Product

Bracket

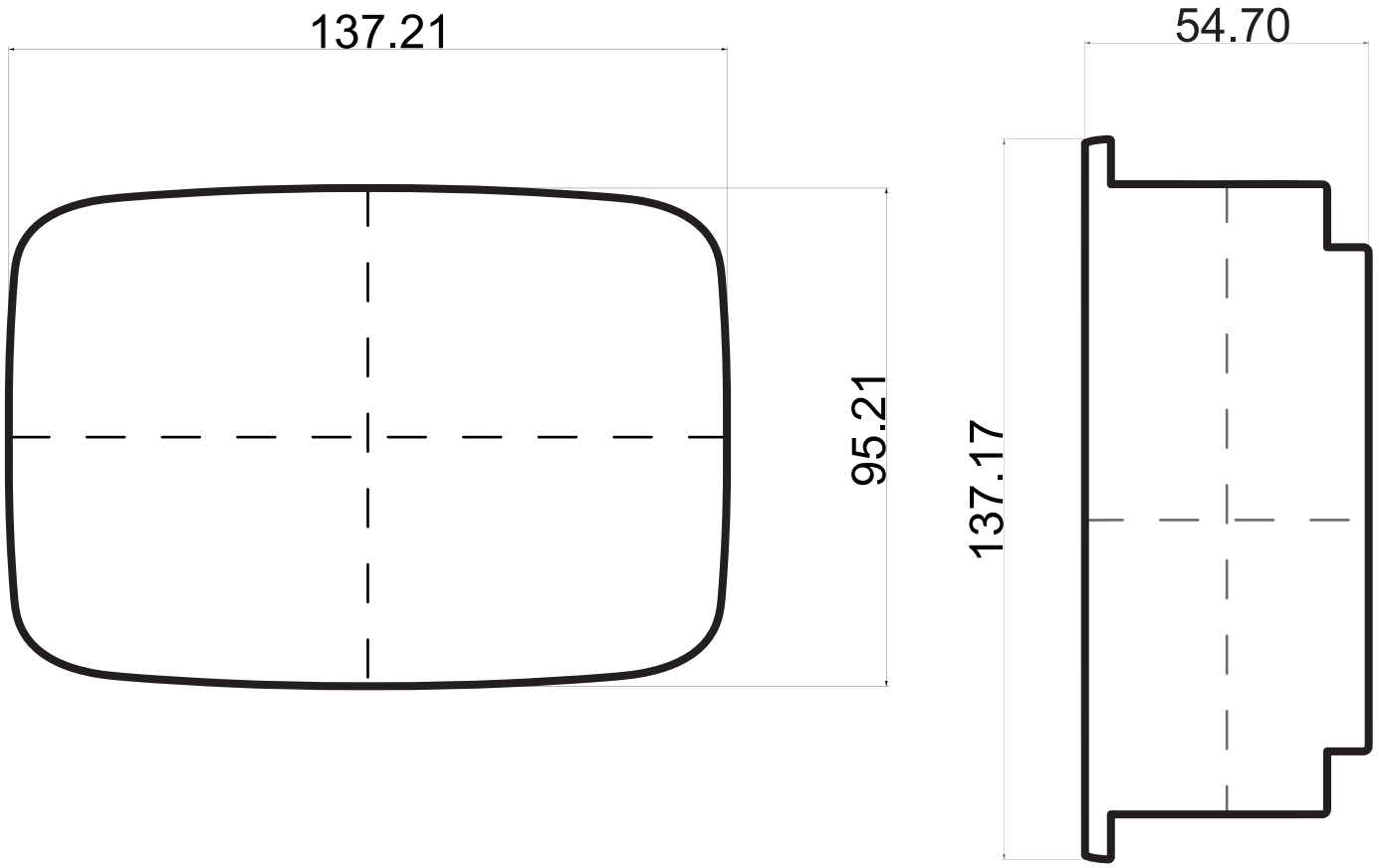


Sensor

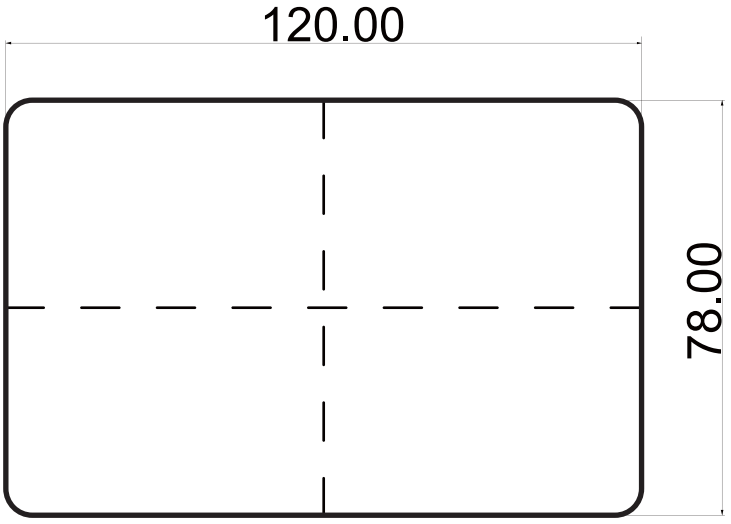
3 Product appearance and panel dimension

Unit : mm /Error : ±0.5

Product dimension



Panel processing dimension



4 Terminal wiring methods and input/out specifications

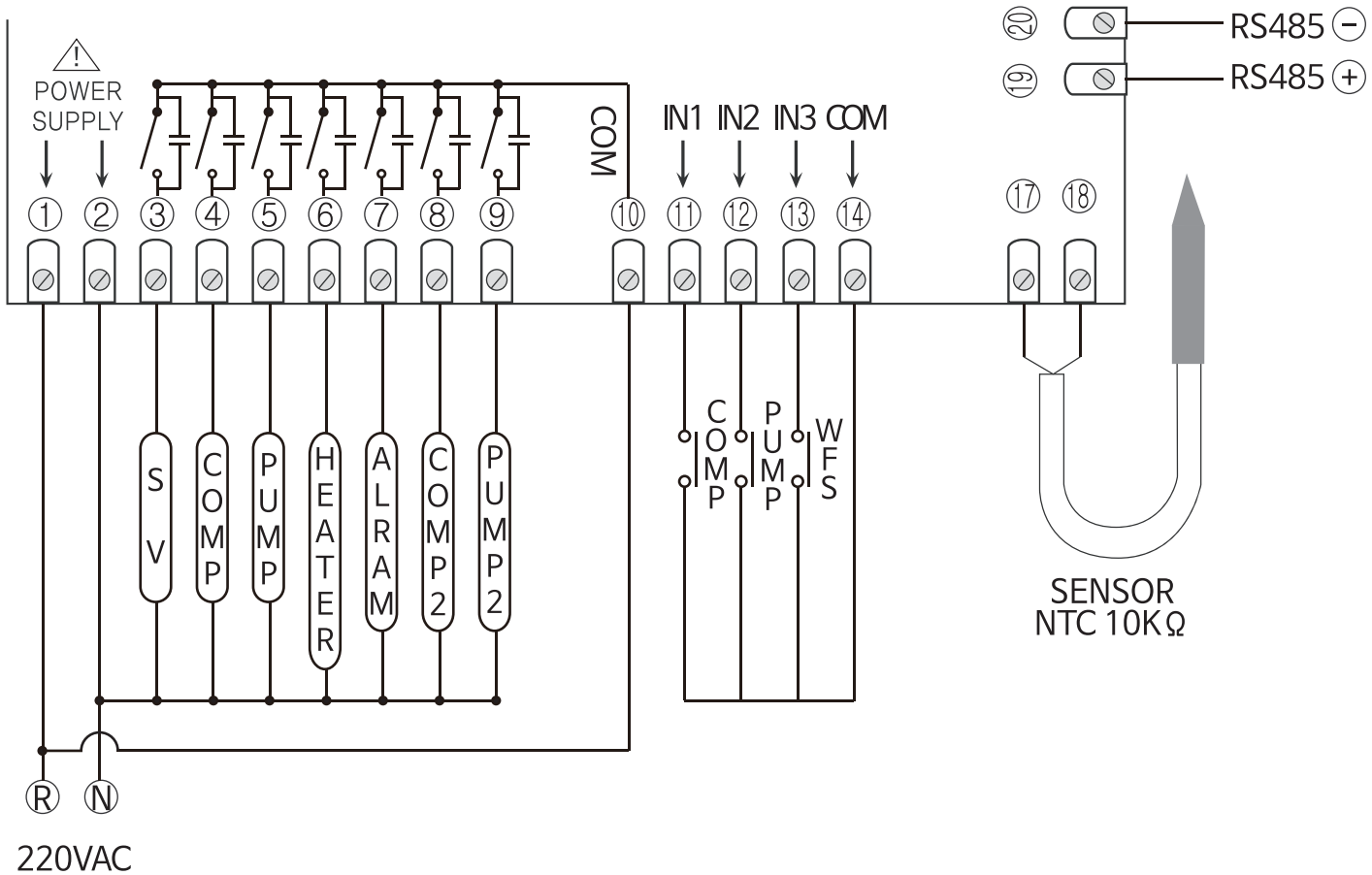
1) Input Voltage : 100 ~ 240VAC
2) Output Voltage: The same as input voltage
3) Output contact capacity: Relay contact output (5A 250VAC)
4) Input Port: 3 Ports no power contact
5) Output Port: 7 Ports
6) Sensor : 1PORT(NTC 10KΩ)
7) Temperature Range : -55.0℃ ~ 99.9℃

Input Port	Port
IN1 ⑪	COMP
IN2 ⑫	PUMP
IN3 ⑬	WFS
COM ⑭	COM

Sensor	Port
SEN⑰⑱	Temp.

Output	Port
OUT1 ③	S V
OUT2 ④	COMP
OUT3 ⑤	PUMP
OUT4 ⑥	HEATER
OUT5 ⑦	ALARM
OUT6 ⑧	COMP_2
OUT7 ⑨	PUMP_2

Comm.	Port
485 ⑲⑳	Comm.



5 Special Feature

(1) TFT-LCD and Touch Function

With TET-LCD and touch, much information and colors can be displayed and easy operation and recognition support a user-oriented interface.

※ The product uses a capacitive touch method and thus requires precautions as the key may cause malfunction if touched with wet hands or used with thick gloves.

(2) Central Monitoring Control Function

The product is embedded with the RS485 communication function to be connected to a computer. It uses the Modbus protocol to be used with the MMI (Man Machine Interface) system.

(3) Alarm history store

Up to 20 alarm histories can be stored, which helps to analyze the cause of problems and maintenance.

(4) Compact and Slim

The integrated display and control ensure sufficient space.

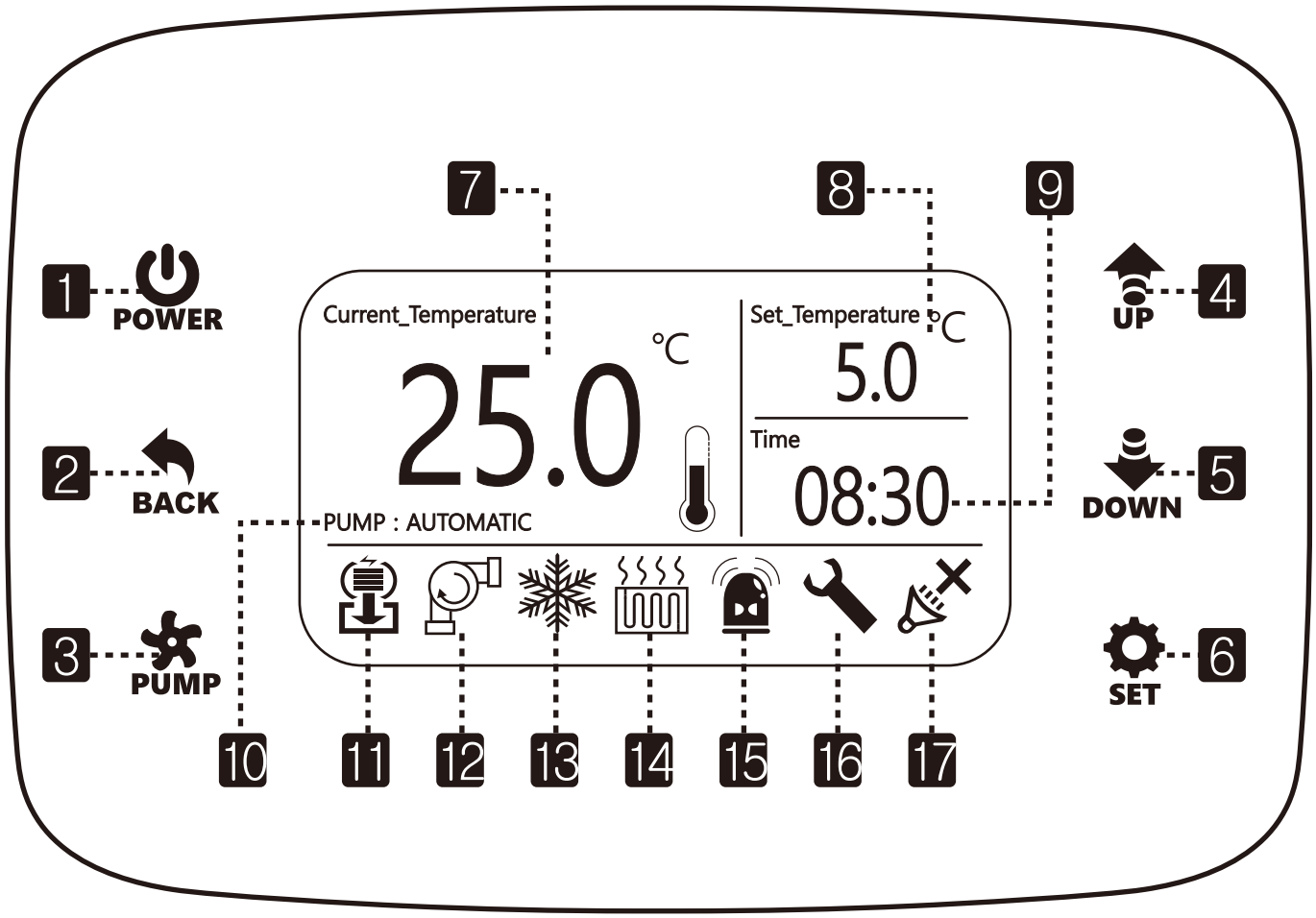
(5) Pump manual/auto operation mode function

Pump operation is configured according to user convenience for effective control and management

(6) Preheating and freeze protection

The function to prevent a breakdown of water pipes and equipment due to water frozen in the cold weather.

6 Switch and Display

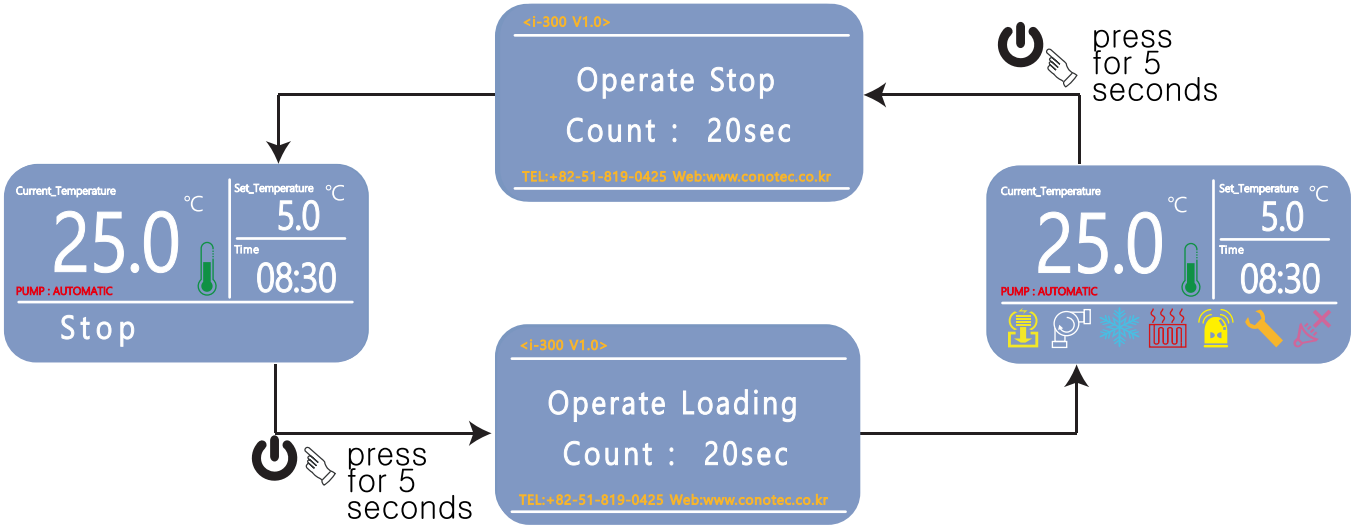


1. Power: A button to start or stop a system.
2. Cancel: A button to move to the previous menu at the time of setting or to return to the basic screen
3. Pump: A button for automatic operation of the pump operation mode / and to switch to the manual operation
4. Top: A button to move to the menu in the setting or a button that increases the setpoint upon changing
5. Bottom: A button to move to the menu in the setting or a button that decreases the setpoint upon changing
6. Check: A button to enter the setting menu or to select setpoint.
7. Displays the current temperature (PV) or sensor errors
8. Displays the set temperature (SV)
9. Displays the current time
10. Displays the operation mode of the current pump
11. SV output status icon
12. Pump output status icon
13. Comp. output status icon
14. Heater output status icon
15. Alarm output status icon
16. Repair and maintenance alarm icon
17. Buzzer operation status icon

※ The output status icon is displayed only, and in delay time when not in operation. When the icon starts moving, the output will be ON.

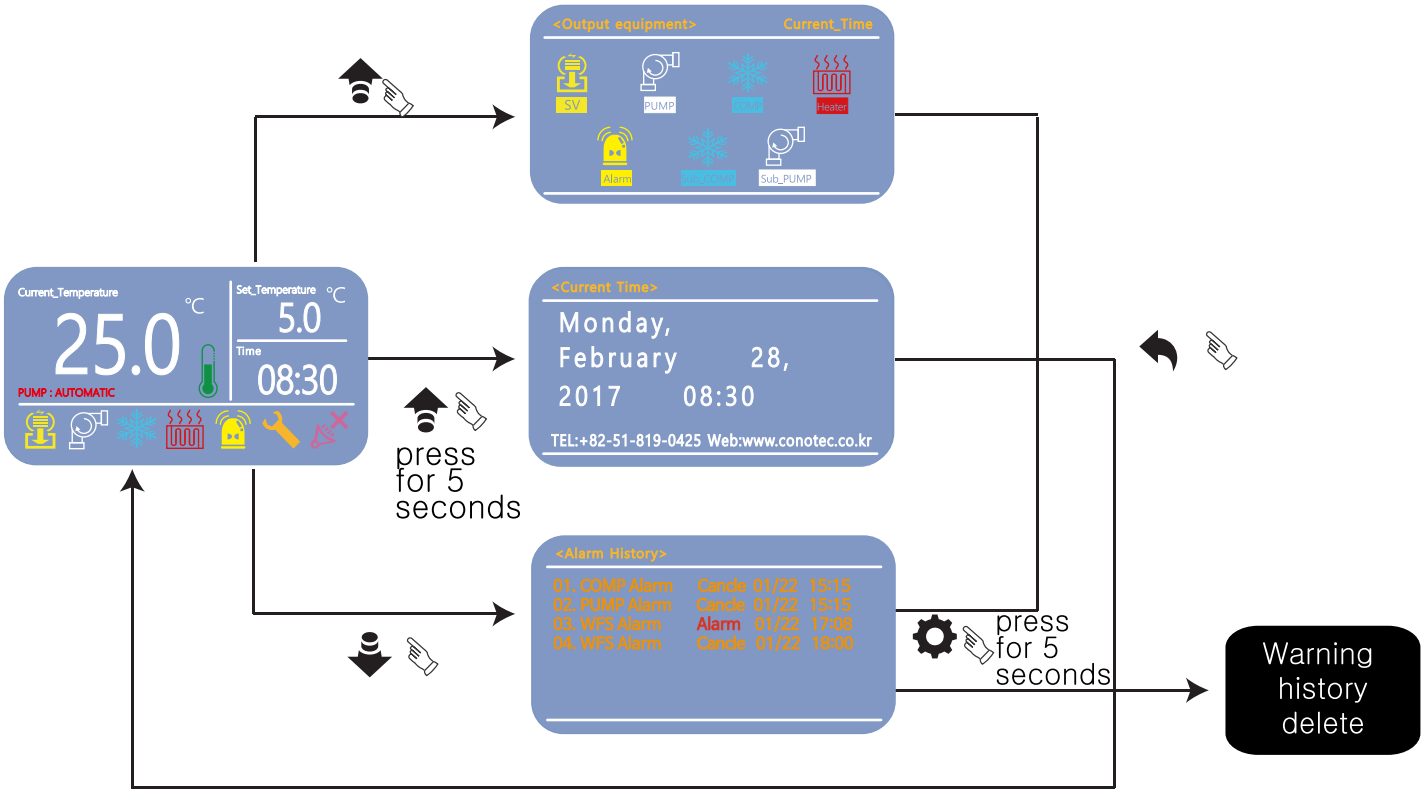
7 Menu Load Map

■ System ON / OFF



– For more details on blackout restoration / delay time, refer to pages 14–15.

■ Output status / The current time (the telephone number to the installer) / View alarm history



– Pressing the button once without entering various menus in the main screen shows the operation status, time, the contact number to the installer and alarm histories.

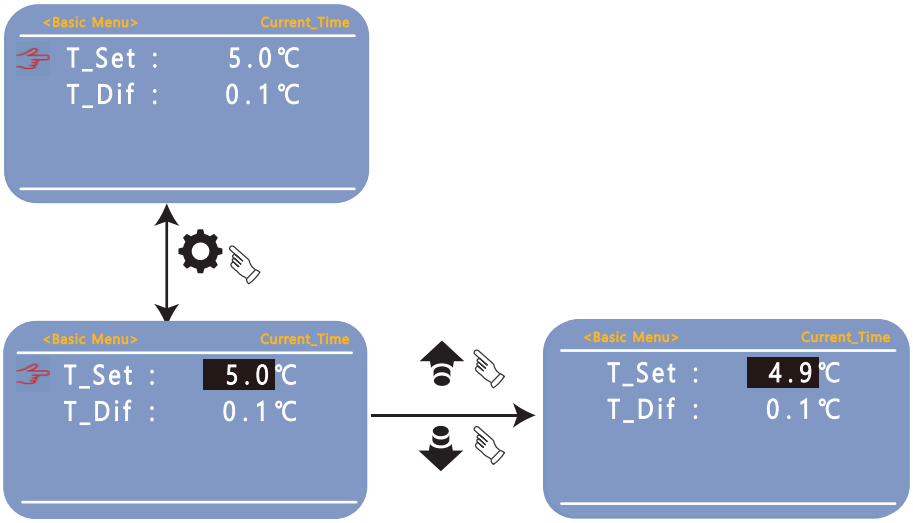
■ Pump Operation Mode Change

- The system should be stopped to change the mode of pump operation.

■ Mute Mode

- When the alarm buzzer goes off, the buzzer sound can be turned off by activating the mute mode.

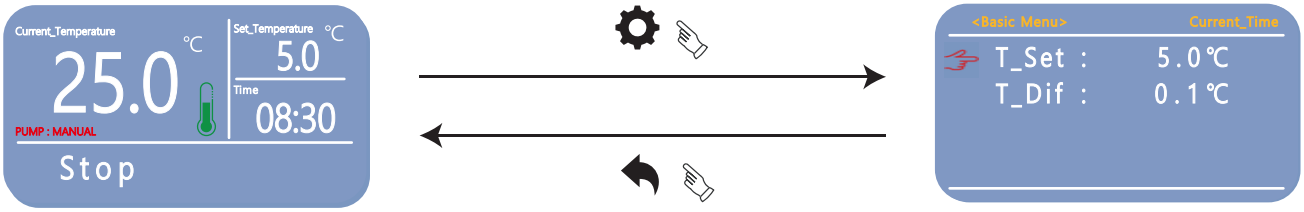
■ How to change the setpoint



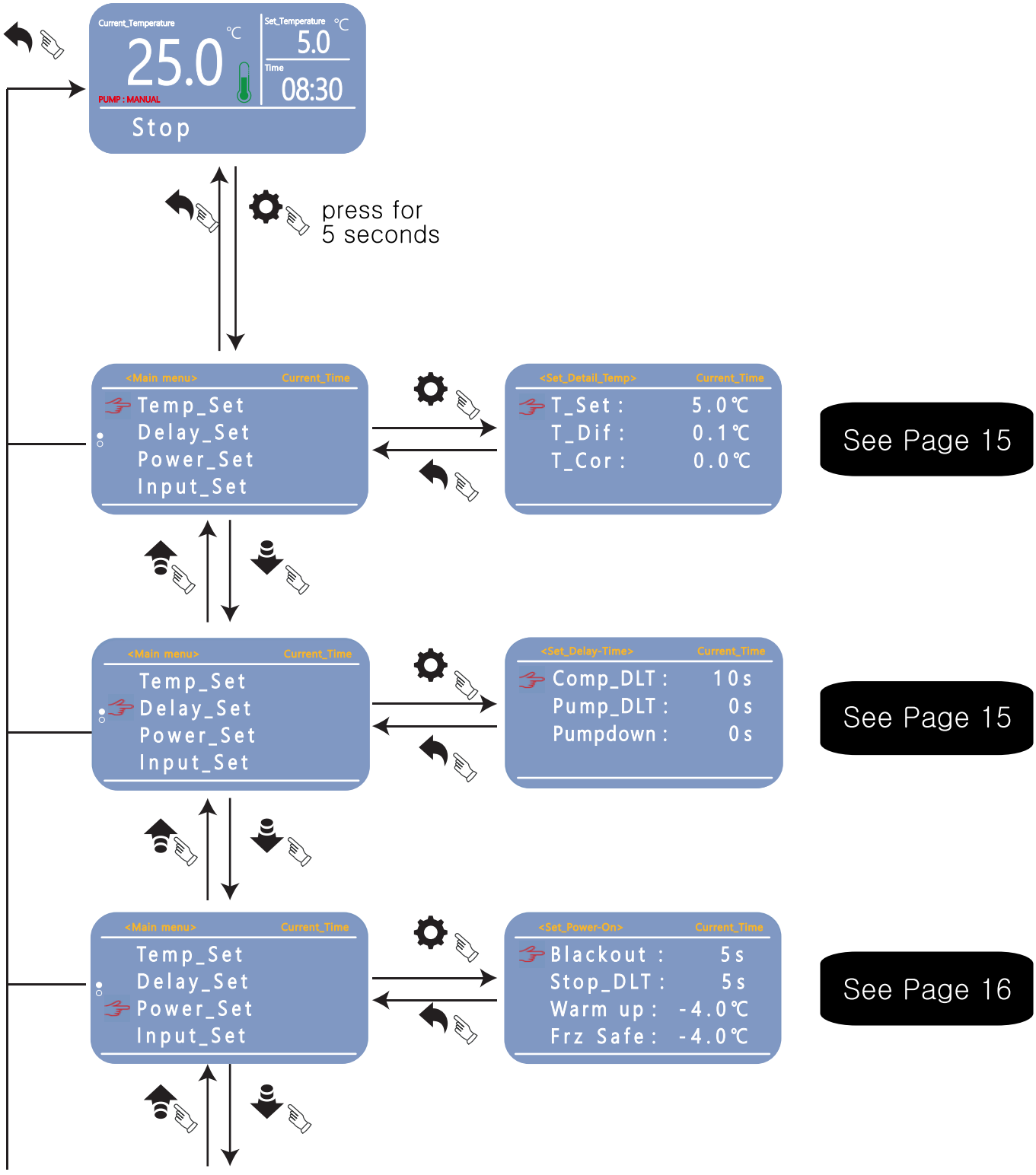
- Move the cursor (a finger) by using the up/down key in the menu.
  Place the cursor on the item for settings and press the set key. This will change the value you wish to change to a black square and you can change the value by using up/down key.
  Pressing the set key again completes the change.

- When the system is in operation, the operation mode of the pump or the setpoint cannot be changed.
  (However, the basic temperature setpoint can be changed.)
  To change, press the power for 5 seconds to stop the system.

■ Basic temperature settings



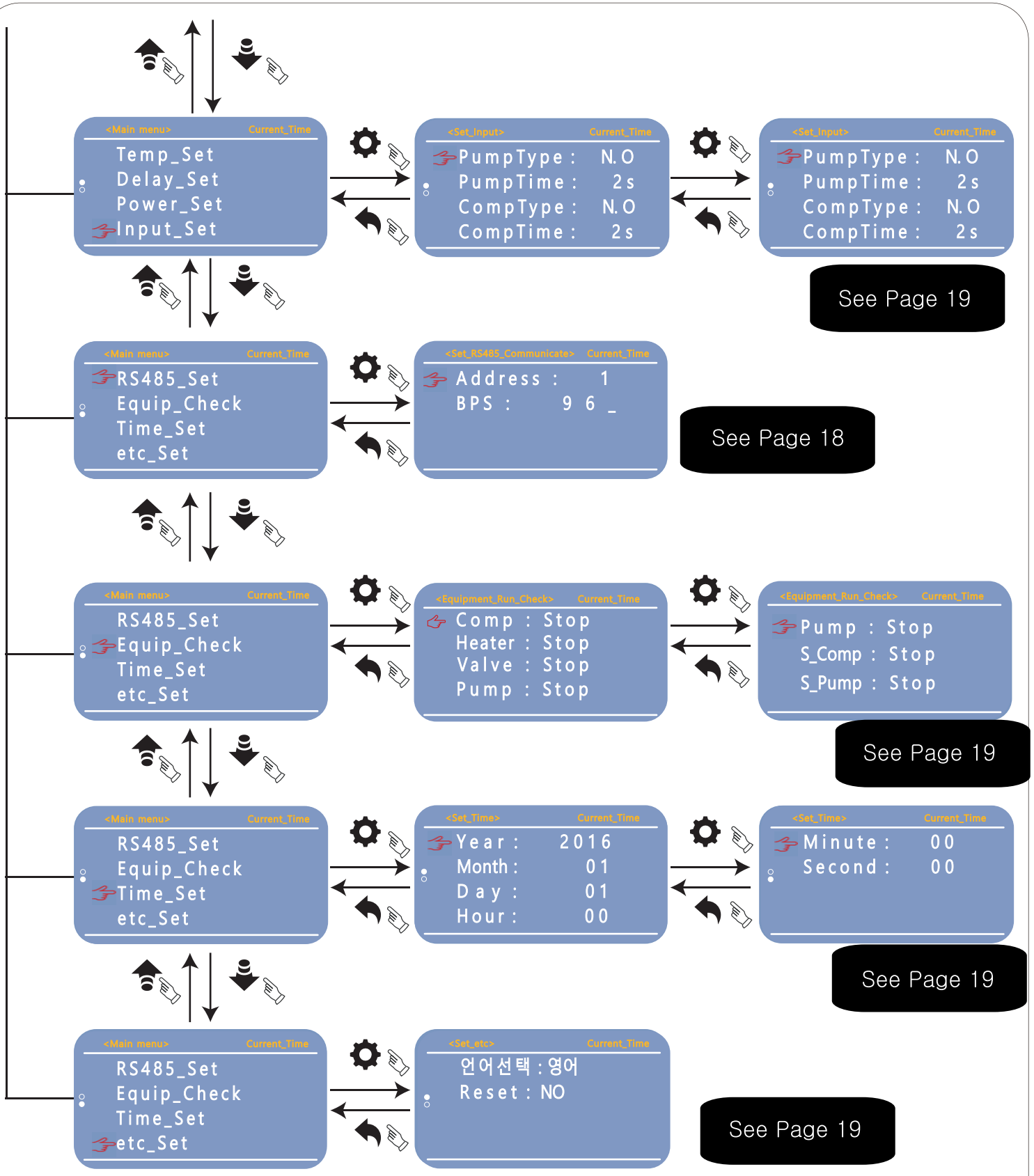
■ Detailed Menu Settings



See Page 15

See Page 15

See Page 16


<Main menu>
Current_Time
Temp_Set
Delay_Set
Power_Set
Input_Set
<Set_Input>
Current_Time
PumpType : N.O
PumpTime : 2s
CompType : N.O
CompTime : 2s
<Set_Input>
Current_Time
PumpType : N.O
PumpTime : 2s
CompType : N.O
CompTime : 2s
See Page 19
<Main menu>
Current_Time
RS485_Set
Equip_Check
Time_Set
etc_Set
<Set_RS485_Communicate>
Current_Time
Address : 1
BPS : 9 6 _
See Page 18
<Main menu>
Current_Time
RS485_Set
Equip_Check
Time_Set
etc_Set
<Equipment_Run_Check>
Current_Time
Comp : Stop
Heater : Stop
Valve : Stop
Pump : Stop
<Equipment_Run_Check>
Current_Time
Pump : Stop
S_Comp : Stop
S_Pump : Stop
See Page 19
<Main menu>
Current_Time
RS485_Set
Equip_Check
Time_Set
etc_Set
<Set_Time>
Current_Time
Year : 2016
Month : 01
Day : 01
Hour : 00
<Set_Time>
Current_Time
Minute : 00
Second : 00
See Page 19
<Main menu>
Current_Time
RS485_Set
Equip_Check
Time_Set
etc_Set
<Set_etc>
Current_Time
언어선택 : 영어
Reset : NO
See Page 19

8 Basic Menu

■ Basic Temperature Settings

Setting	Factor Reset	Setting range	Unit
Temperature	5.0	-55.0 ~ 99.9	℃
Deviation	1.0	0.1 ~ 19.9	℃

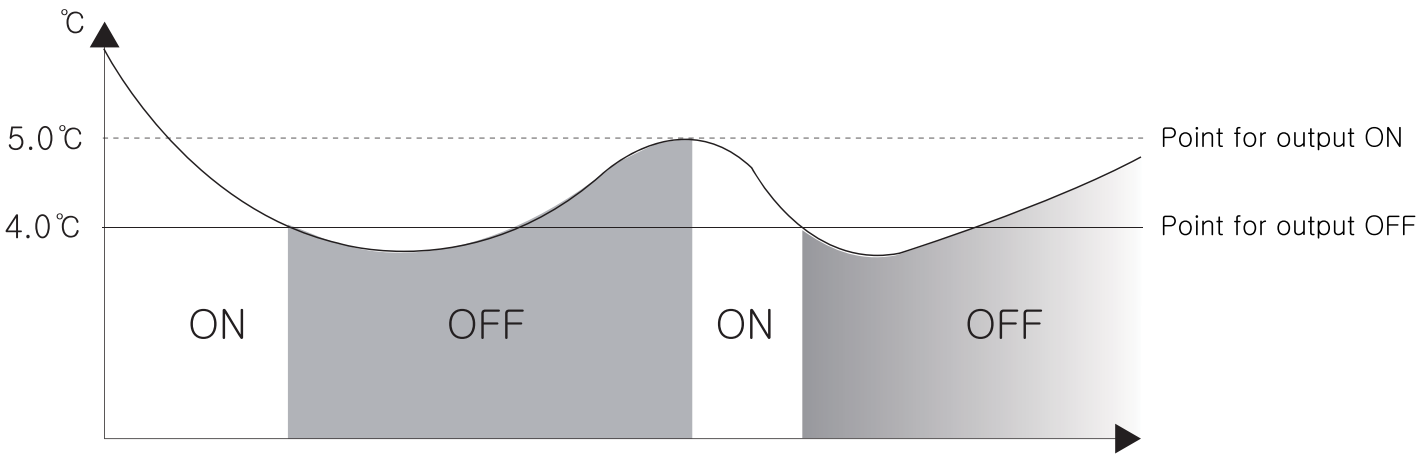
Setting Temperature

- Setup the basic temperature for operation

Temperature Deviation

- A regular interval is required between ON and OFF in the ON/OFF control (set up ON/OFF width)
- Frequent ON and OFF will shorten the lifespan of the relay or the output contact or cause hunting (generation, chattering) by noise from outside. The temperature deviation function is used to setup temperature deviation to protect the equipment contact, etc.

Temperature Control Example



Setting Temperature 5.0℃, Temperature Deviation: 1.0℃
Current Temperature > Setting Temperature + Temperature Deviation → Output ON
Current Temperature ≤ Setting Temperature → Output OFF

9 Detailed Temperature Setting

■ Detailed Temperature Setting

Setting Item	Factory Reset	Setting Range	Unit
Setting Temperature	5.0	-55.0 ~ 99.9	℃
Temperature Deviation	1.0	0.1 ~ 19.9	℃
Sensor Calibration	0.0	-10.0 ~ 10.0	℃

Temperature Setting

- The same as the default temperature settings (See page 14)

Temperature Deviation

- The same as the default temperature settings (See page 14)

Sensor Calibration

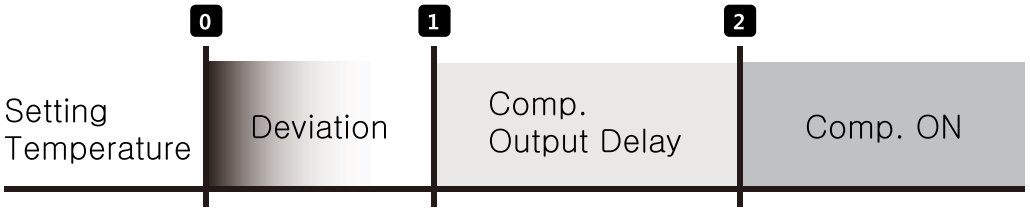
- While there is no problem in the product, if the temperature shown in the display window and the actual temperature are differed, the function calibrates the current temperature and adjusts to the actual temperature.
  E.g.) Actual Temperature: 20.0℃ / Display Temperature: at 25.0℃
  If the sensor calibration value is set at -5.0, the current temperature is displayed at 20.0℃.

■ Delay Time Setting

Setting Item	Factory Reset	Setting Range	Unit
Comp. Delay Time	0	0 ~ 300	Sec.
Pump Delay Time	0	0 ~ 300	Sec.
Pump Down Time	0	0 ~ 300	Sec.

Comp. Delay Time

- If the control target repeats ON/OFF frequently and causes problems: (Freezer, compressor, etc.)
- A function to protect the machine in operation when power is re-applied or momentary power failure



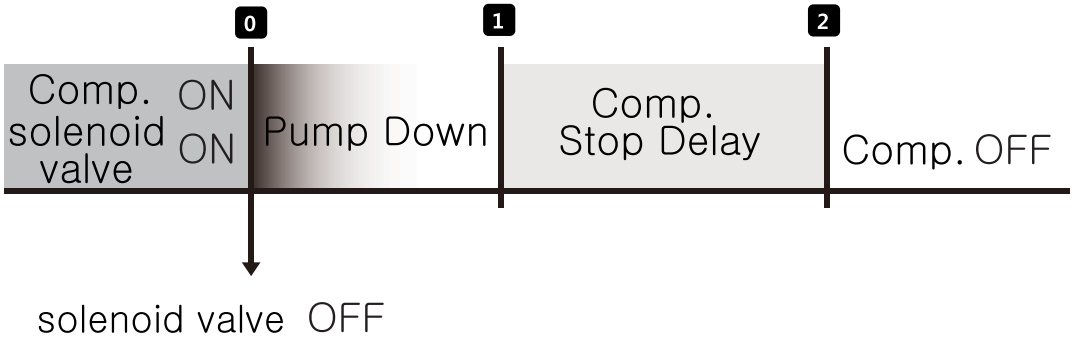
E.g.) Suppose the output delay time is 60 seconds, the delay time is (60 seconds) from 1 to 2 and the relay will be ON in 2.

Pump Delay Time

– The same as the Comp. delay time (See page 13)

Pump Down Time

– The function to setup the delay time until Comp. output comes to stop after the solenoid valve is OFF upon the termination of cooling/heating/thermostatic operation.
– When the pump is down, satisfy one condition from time or low pressure input to stop pump down operation.



E.g.) Suppose pump down is 10 seconds and Comp. stop delay time is 10 seconds: After the occurrence of solenoid valve OFF 0 section and the time (10 seconds) from 0 to 1), and Comp. OFF after time delay (10 seconds) from 1 to 2 .

* If pump down is 0 second(s), the Comp. stop delay will occur after COMP input signal.

■ Power operation setting

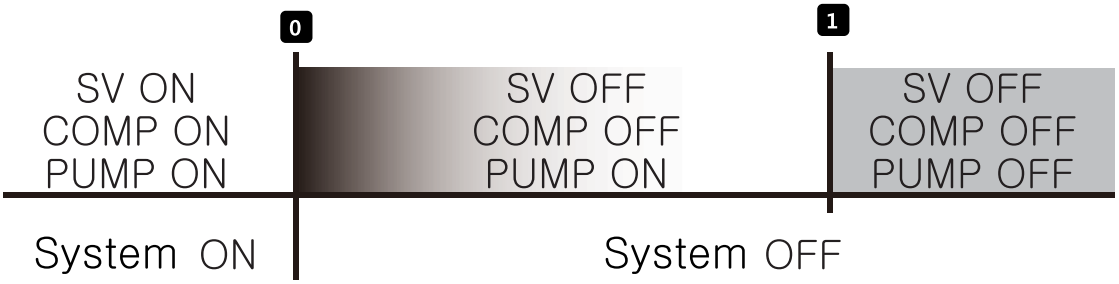
Setting Item	Factory Reset	Setting Range	Unit
Blackout Recovery	5	0 ~ 300	Sec.
Stop Delay	60	0 ~ 300	Sec.
Preheating	4.0	-40.0 ~ 40.0	℃
Anti-freezing	4.0	-40.0 ~ 40.0	℃

Blackout Recovery

– Delay time when power supply or system operation
– Prevent problems from occurring caused by the operating devices frequently turn ON/ OFF when the power is unstable or power failure frequently occurs.

Stop Delay

– When stopping the system, all the outputs except the pump are turned OFF, only the pump output is maintained for the delay time, and OFF.
– If the compressor is turned OFF when it is in operation, cold water may freeze cold water and piping caused by cold air, so cycle pump as much as delay time and all outputs OFF.



E.g.) Suppose stop delay time is 60 seconds, the system is turned OFF at 0, and the output of the SV/COMP in operation will be turned OFF. And the system will be delayed until the time (60 seconds) of 1 and the pump relay will be turned OFF.

Pre-heat Operation (Pump Automatic Mode)

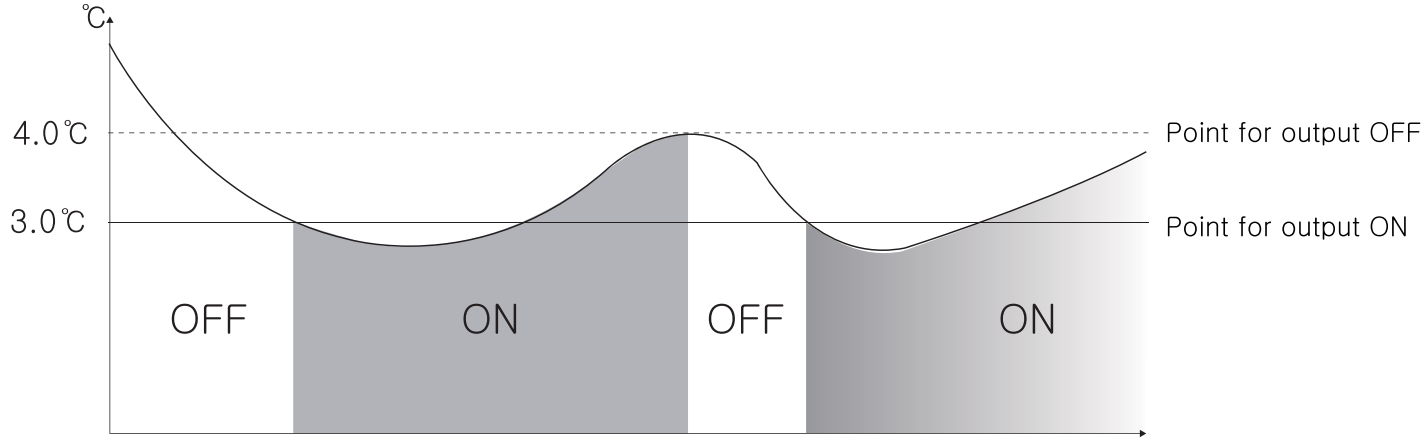
- Before operation, the system is pre-heated as much as the set temperature
- The function turns ON the heater output when the temperature is lower by 1.0℃ that the set temperature and when the system reaches the set temperature, the function turns OFF the heater output.

※ The function is applied when the pump operation mode is in the manual mode.

Freeze Prevention (Pump Manual Mode)

- Before operation, the system is pre-heated as much as the set temperature
- The function turns ON the heater output when the temperature is lower by 1.0℃ that the set temperature and when the system reaches the set temperature, the function turns OFF the heater output.

※ The function is applied when the pump operation mode is in the manual mode.



Pre-heat Operation: 4.0℃

Current Temperature < Setting Temperature - 1.0 (℃) → Output ON
Current Temperature ≥ Setting Temperature → Output OFF

■ Exterior Input Setting

Setting Item	Factor Reset	Setting Range	Unit
Pump Input Time	N.C	N.C/N.O	
Pump Input Type	5 Sec.	0 ~ 300	Sec
Comp. Input Time	N.C	N.C/N.O	
Comp. Input Type	5 Sec.	0 ~ 300	Sec
Water Circulation Time	N.C	N.C/N.O	
Water Circulation Type	5 Sec.	0 ~ 300	Sec

Pump Input Time

- The function detects signal of pump input during the setting time or sets up detection time to set the alarm when not detected.
- However, if it is set at '0', pump will not breakdown.

Pump Input Type

- N.C(Normal Close) / N.O(Normal Open)

Comp. Input Time

- The function detects signal of Comp. input during the setting time or sets up detection time to set the alarm when not detected.
- However, if it is set at '0', Comp. will not breakdown.

Comp. Input Type

- N.C(Normal Close) / N.O(Normal Open)

Water Circulation Time

- The function detects signal of the water circulation switch input during the setting time or sets up detection time to set the alarm when not detected.
- However, if it is set at '0', water circulation will not breakdown.

Water Circulation Type

- N.C(Normal Close) / N.O(Normal Open)

■ RS485 Communication Setting

Setting Item	Factory Reset	Setting Range
Communication Code No.	1	1~99
Communication Speed	96_	12_ / 24_ / 48_ / 96_ / 192_

Communication Code No.

- To use the RS485 communication, appoint area codes from 1 to 99.

Communication Speed

- Controls communication speed.
- 1200BPS / 2400BPS / 4800BPS / 9600BPS / 19200BPS

■ Equipment Output Test

Setting Item	Setting Range
Valve	Stop/On
Pump	
Comp.	
Heater	
Alarm	
Comp. Preparation	
Pump Preparation	

Equipment Output Test

- To test connected operation devices after installation, change the setpoint.

※The setpoint will be reset to stop if exit the menu without saving the setpoint.

■ Current Time Setting

Setting Item	Setting Range	Unit
Year	2010 ~ 2099	YY
Month	1 ~ 12	MM
Day	1 ~ 31	DD
Hour	0 ~ 23	Hr.
Minute	0 ~ 59	Min.
Second	0 ~ 59	Sec.

■ Other Device Settings

Setting Item	Setting Range
Language	Korean / English
Setpoint Reset	Cancel / Reset
Contact number to the installer	_ / 0-9

Language

- All menus and the system language can be change between Korean and English.

Setpoint Reset

- The set point changes to the factory reset.

Contact number to the installer

- The function to input contact number to the installer
- The input number will be displayed in the main screen showing date.

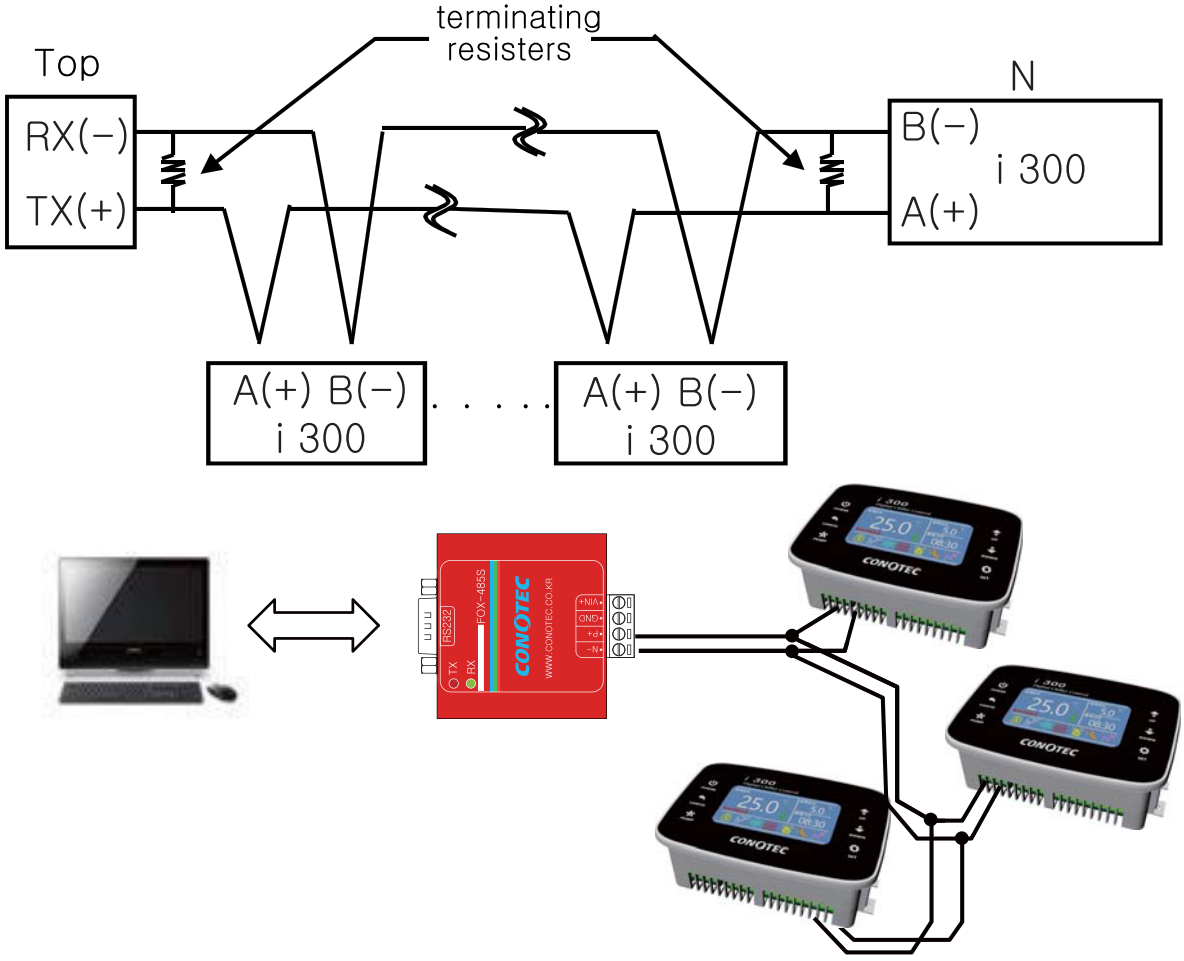
※If the contact number is below 11 digits, the blank digit should be filled up for normal display.

10 Communication Control Output

■ Interface

Applicable Standard	EIA RS485 Reference
The Max. Number of Connection	32 units (Communication codes can be set between 1 to 99)
Communication Method	Two-wire, Half Duplex
Communication System	Asynchronous
Communication Distance	Within 1 .2Km
Communication Speed	1200/2400/4800/9600/19200bps (Optional)
Start Bit	1Bit Fixed
Stop Bit	1Bit Fixed
Bit	None
Data Bit	8Bit Fixed
Protocol	Modbus RTU

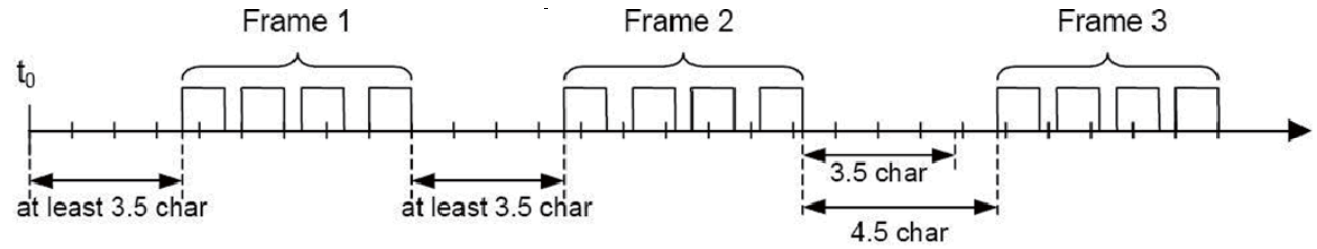
■ System Composition



"RS485" for 1:N communication is available that uses the RS485 communication standard. At this time, the device becomes a slave. A separate RS485 to 232 converter is necessary to communicate with computer programs. (Sold separately)
Communication cable should be twist pair cable suitable for RS485 communication.

■ Modus RTU Composition

1. The communication protocol of i300 is Modus RTU.
2. The master sends query and the slave sends responses.



MODBUS message

Start	Address	Function	Data	CRC Check	End
≥ 3.5 char	8 bits	8 bits	N x 8 bits	16 bits	≥ 3.5 char

■ Definition of Communication Command Block

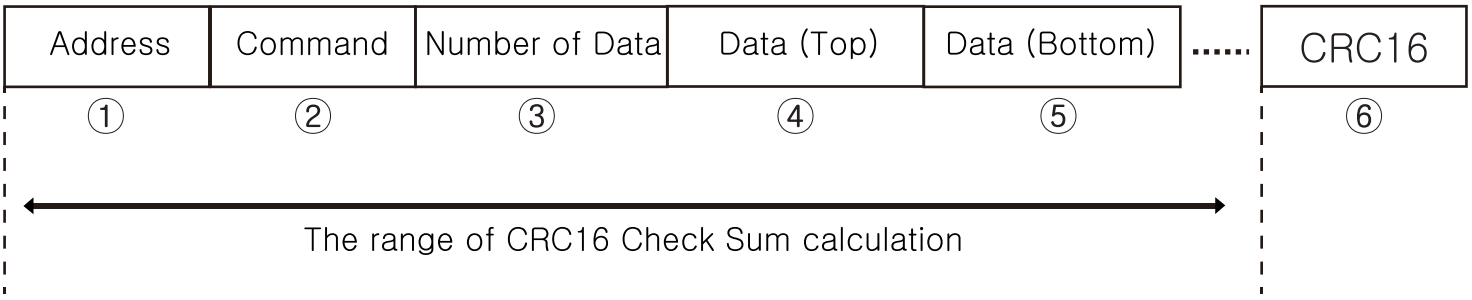
< Host Query Format >

Code Number	Command	Starting address	Number of Data	CRC16
①	②	③	④	⑤

The range of CRC16 Check Sum calculation

① Area Code: The host system is the area code that identifies products. They can be set within the range of 1-99.
② Command: Input registry read command
③ Address: The address to read input register.
④ Number of Data: The number of 16Bit data to read from the start address (No. of Points)
⑤ CRC16: The code ensures transmission of accurate data and requests re-sending. It monitors errors that can occur in data transmission between sender and receiver with Check Sum that checks the entire block.

< Response Format of the Product >



① Area Code: The host system is the area code that identifies products.
They can be set within the range of 1-99.
② Command: Input register read command (See the Modbus Mapping Table)
③ The number of data: The number of 16 Bit data to read from the start address
(See the Modbus Mapping Table)
④ Data (Host): Host Data of read value (1 Byte)
⑤ Data (Sub): Sub Data of read value (1 Byte)
⑥ CAC16: Check Sum Code that checks the entire block.

<Error Process >

Address	Response Command (Command) + 80H	Exception Code	CRC16

Exception Code:
(01H) Command not supported
(02H) The start address of the requested data is inconsistent with the address that can be sent from the device
(03H) The number of requested data is inconsistent with the number that can be sent from the device
(04H) Unable to process the requested command

■ Modbus Mapping Table

<Read Coils(Func01)/Write Single Coil(Func05)>

NO	Address	Classification	Setting Range	Unit	Remarks
000001	0000		0: On, 1: Stop		

<Read Discrete Input(Func02)>

NO	Address	Classification	Setting Range	Unit	Remarks
100001	0000	Valve	0:OFF 1:ON	Bit1	
100002	0001	Comp.	0:OFF 1:ON	Bit2	
100003	0002	Pump	0:OFF 1:ON	Bit3	
100004	0003	Heater	0:OFF 1:ON	Bit4	
100005	0004	Alarm	0:OFF 1:ON	Bit5	
100006	0005	Sub Comp.	0:OFF 1:ON	Bit6	
100007	0006	Sub Pump	0:OFF 1:ON	Bit7	
100008	0007	Repair	0:OFF 1:ON	Bit8	
100009	0008	Comp. Input	0:OFF 1:ON	Bit9	
100010	0009	Pump Input	0:OFF 1:ON	Bit10	
100011	0010	Water Circulation Input	0:OFF 1:ON	Bit11	
100012	0011	Pump Mode	0:Manual,1:Automatic	Bit12	
100013	0012	Mute	0:ON 1:OFF	Bit13	

<Read Input Registers(Func04)>

*Main Screen

NO	Address	Classification	Setting Range	Unit	Remarks
300001	0000	Current Temperature	-550 ~ 999(-55.0 ~ 99.9)	℃	
300002	0001	Valve	0:OFF 1:ON	Bit1	
		Comp.	0:OFF 1:ON	Bit2	
		Pump	0:OFF 1:ON	Bit3	
		Heater	0:OFF 1:ON	Bit4	
		Alarm	0:OFF 1:ON	Bit5	
		Sub Comp.	0:OFF 1:ON	Bit6	
		Sub Pump	0:OFF 1:ON	Bit7	
		Repair	0:OFF 1:ON	Bit8	
		Comp. Input	0:OFF 1:ON	Bit9	
		Pump Input	0:OFF 1:ON	Bit10	
		Water Circulation Input	0:OFF 1:ON	Bit11	
		Pump Mode	0: Manual, 1: Automatic	Bit12	
		Mute	0:ON 1:OFF	Bit13	

* Main Screen

NO	Address	Classification	Setting Range	Unit	Remarks
300003	0002	Current Time (Year)	2010 ~ 2099	YR	
300004	0003	Current Time (Month)	1 ~ 12	MM	
300005	0004	Current Time (Date)	1 ~ 31	DD	
300006	0005	Current Time (Day)	0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thur, 5: Fri, 6: Sat	Day	
300007	0006	Current Time (Time)	0 ~ 23	HR	
300008	0007	Current Time (Minute)	0 ~ 59	Min.	
300009	0008	Current Time (Second)	0 ~ 59	Sec.	

* Alarm Screen

NO	Address	Classification		Setting Range	Unit	Remarks
301001	03E8	Alarm 1	Detail	0 ~ 4		See the table
301002	03E9		Classification	0: Cancel, 1: Generate		
301003	03EA		MM	1 ~ 12	MM	
301004	03EB		DD	1 ~ 31	DD	
301005	03EC		MM	0 ~ 23	HR	
301006	03ED		DD	0 ~ 59	Min.	
301007	03EE	Alarm 2	Detail	0 ~ 4		See the table
301008	03EF		Classification	0: Cancel, 1: Generate		
301009	03F0		MM	1 ~ 12	MM	
301010	03F1		DD	1 ~ 31	DD	
301011	03F2		MM	0 ~ 23	HR	
301012	03F3		DD	0 ~ 59	Min.	

<See the Table>

	Description
Detail	0: No detail 1: Comp. alarm occurrence 2: Pump alarm occurrence 3: Water circulation alarm occurrence 4: Temperature sensor error

301115	045A	Alarm 20	Detail	0 ~ 4		See the table
301116	045B		Classification	0: Cancel, 1: Generate		
301117	045C		MM	1 ~ 12	MM	
301118	045D		DD	1 ~ 31	DD	
301119	045E		HR	0 ~ 23	HR	
301120	045F		Min.	0 ~ 59	Min.	

<Read Holding Register(Func03)/Write Single Register(Func06)/
Write Multiple Register(Func16)>

* Temperature Setting

NO	Address	Classification	Setting Range	Unit	Remarks
400001	0000	Temperature Setting	-550 ~ 999(-55.0 ~ 99.9)	℃	
400002	0001	Temperature Deviation	1 ~ 199(0.1 ~ 19.9)	℃	
400003	0002	Temperature Calibration	-100 ~ 100(-10.0 ~ 10.0)	℃	

* Delay Time Setting

NO	Address	Classification	Setting Range	Unit	Remarks
400004	0003	Comp. Delay Time	0 ~ 300	Sec.	
400005	0004	Pump Delay Time	0 ~ 300	Sec.	
400006	0005	Pump Down Time	0 ~ 300	Sec.	

* Power Operation Setting

NO	Address	Classification	Setting Range	Unit	
400007	0006	Blackout Return Time	0 ~ 300	Sec.	
400008	0007	Stop Delay Time	0 ~ 300	Sec.	
400009	0008	Preheat Operating Temperature	-400 ~ 400(-40.0 ~ 40.0)	℃	
400010	0009	Freeze protection temperature	-400 ~ 400(-40.0 ~ 40.0)	℃	

* External Input Setting

NO	Address	Classification	Setting Range	Unit	
400011	000A	Pump Input Time	0 ~ 300	Sec.	
400012	000B	Pump Input Type	0:N.C / 1:N.O		
400013	000C	Comp. Input Time	0 ~ 300	Sec.	
400014	000D	Comp. Input Type	0:N.C / 1:N.O		
400015	000E	Water Circulation Time	0 ~ 300	Sec.	
400016	000F	Water Circulation Type	0:N.C / 1:N.O		

* RS485 Communication Setting

NO	Address	Classification	Setting Range	Unit	
400017	0010	Communication Address	1 ~ 99	Code	
400018	0011	Communication Speed	0:1200 / 1:2400 / 2:4800 3:9600 / 4:19200	Bps	

* Equipment Output Test

NO	Address	Classification	Setting Range	Unit	Remarks
400019	0012	Valve Output	0: Stop / 1: On		
400020	0013	Pump Output			
400021	0014	Comp. Output			
400022	0015	Heater Output			
400023	0016	Alarm Output			
400024	0017	Sub Comp. Output			
400025	0018	Sub Pump Output			

* Current Time Setting

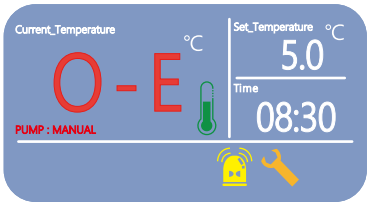
NO	Address	Classification	Setting Range	Unit	Remarks
400026	0019	Year	2010 ~ 2099	Year	
400027	001A	Month	1 ~ 12	Month	
400028	001B	Date	1 ~ 31	Date	
400029	001C	Time	0 ~ 23	Time	
400030	001D	Minute	0 ~ 59	Minute	
400031	001E	Second	0 ~ 59	Second	

* Other Device Setting

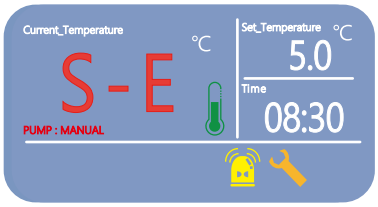
NO	Address	Classification	Setting Range	Unit	Remarks
400032	001F	Language	0: Korean / 1: English		
400033	0020	Telephone number to the installer_1	-1 ~ 9	Code	
400034	0021	Telephone number to the installer_2	-1 ~ 9		
400035	0022	Telephone number to the installer_3	-1 ~ 9		
400036	0023	Telephone number to the installer_4	-1 ~ 9		
400037	0024	Telephone number to the installer_5	-1 ~ 9		
400038	0025	Telephone number to the installer_6	-1 ~ 9		
400039	0026	Telephone number to the installer_7	-1 ~ 9		
400040	0027	Telephone number to the installer_8	-1 ~ 9		
400041	0028	Telephone number to the installer_9	-1 ~ 9		
400042	0029	Telephone number to the installer_10	-1 ~ 9		
400043	002A	Telephone number to the installer_11	-1 ~ 9		

11 Others

■ Sensor Error Display



If the sensor cable is cut in the middle or has loose connection in the terminal block:



If short circuit occurred between sensor wire:

■ Memory Error Display

The display is shown when abnormal data is recorded in the non-volatile memory inside the product or if there is damage due to severe external noise. When this appears, pressing the set key will change the setpoint to the factory reset.

※ In the event of frequent error display, please contact our customer service department.

Product Warranty

This product was manufactured after undergoing strict quality management and tests of CONOTEC Inc. The warranty period of this product will be one year after purchase in accordance with the Consumer Injury Compensation Rule. So, please certainly write down the purchasing date and place at the place where the product is purchased.
If the user is failed to write down the information, the warranty will be one year and six months since the release date.

Product Name	
Model Name:	
Purchasing Date	YYYY MM DD
Purchasing Place	

Please prepare this Product Warranty when there is a default in manufacturing or natural malfunction within the period of Product Warranty and visit the purchasing place of main office of CONOTEC for the free repair.

Repair cost can be charged for the following cases or the Warranty period is passed.

- Please be sure to read this manual instruction. If a user requests After Service and the product has no problem, certain cost will be charged.
- In case of malfunction due to carelessness of a user or that a user fixes or remodels the product arbitrarily
- In case of malfunction due to wrong electric capacity
- In case of malfunction due to shocks like fallings
- In case that a user does not abide by this manual instruction
- In case of malfunction due to natural disasters (Fire, Flood damage, Earthquake, Lighting, etc.)

A/S center

- Purchasing place
- A/S Department under CONOTEC Quality Management Division : T: 070-7815-8266, F: 051-819-4562

MEMO

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Reporting Date: Feb 25, 2016 Manual Version: V1.0